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F. Conrad Greer

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FULBRIGHT & JAWORSKI L.L.P.
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

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NGUYEN, NGOC YEN M

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte F. CONRAD GREER,
RONALD L. ELSENBAUMER,
and DAVIS P. OWEN

Appeal 2009-1401
Application 10/662,992
Technology Center 1700

Decided:¹ March 31, 2009

Before TERRY J. OWENS, PETER F. KRATZ, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Statement of the Case

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1-34, all of the pending claims. We have jurisdiction under 35 U.S.C. § 6.²

We AFFIRM.

Appellants' invention relates to a process for the production of metal fluorides. (Spec. 3). Claims 1 and 34 are illustrative:

1. A process for the production of metal fluorides comprising:
introduce a predetermined weight of anhydrous hydrofluoric acid into a reaction vessel set to a predetermined reaction temperature and initiate a mixing action;
preheat a predetermined weight of anhydrous metal to the predetermined reaction temperature;
introduce aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in said reaction vessel at intervals until the entire predetermined weight of the anhydrous metal has been added, wherein the anhydrous metal reacts endothermically with the anhydrous hydrofluoric acid;
remove excess anhydrous hydrofluoric acid from the reaction vessel; and
remove a metal fluoride resultant product from the reaction vessel.

34. A process for the producing ferric trifluoride comprising:
providing hydrofluoric acid in a reaction vessel;

² In this decision we have considered Appellants arguments presented in the Appeal Brief, filed December 10, 2007, and the Reply Brief, filed May 20, 2008.

introducing ferric trifluoride into the hydrofluoric acid in the reaction vessel at intervals until a weight ratio of the anhydrous hydrofluoric acid to the ferric trifluoride is between 2 and 60;
agitating the hydrofluoric acid and ferric trichloride in the reaction vessel;
venting excess hydrogen chloride gas generated during a reaction between the hydrofluoric acid and ferric trichloride;
removing excess anhydrous hydrofluoric acid from the reaction vessel; and
removing a ferric trifluoride resultant product from the reaction vessel.

The following rejections are presented for our review:

Claims 1-24, 26, and 28-30 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which is regarded as the invention.

Claims 1-34 stand rejected under 35 U.S.C. § 103(a) as obvious over the combined teachings of Wojtowicz, U.S. Patent No. 4,034,070, issued July 5, 1977, Mahmood, U.S. Patent No. 4,938,945, issued July 3, 1990, and Zuzich, U.S. Patent No. 5,286,882, issued February 15, 1994.

The rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 1-24, 26, and 28-30 because the recitation of the term “metal” as utilize in independent claims 1 is unclear. Specifically, the Examiner determined the claims are indefinite since “[t]he term ‘metal’ in claim 1 is used by the claim to include ‘metal compound’ (note claim 3), while the accepted meaning is *pure* ‘metal’” (Ans. 5).

Appellants contend that they “have not use the term ‘metal’ contrary to its ordinary meaning. It is common in the context of describing reactions, for one skilled in the art to refer to [the term] ‘metal’ to represent elemental metal or a metal compound supplying the elemental metal to the reaction.” (App. Br. 5).

The issue before us is whether Appellants have shown that the Examiner reversibly erred in concluding that the language of claim 1 is indefinite because the term “metal” is ambiguous even when it is read in light of the Specification?

“The legal standard for definiteness [under the second paragraph of 35 U.S.C. § 112] is whether a claim reasonably apprises those of skill in the art of its scope.” *In re Warmerdam*, 33 F.3d 1354, 1361 (Fed. Cir. 1994). The inquiry is to determine whether the claim sets out and circumscribes a particular area with a reasonable degree of precision and particularity. The definiteness of the language employed in a claim must be analyzed not in a vacuum, but in light of the teachings of the particular application. *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971).

“[D]uring patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.” *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). That is, a patent applicant has the opportunity and responsibility to remove any ambiguity in claim term meaning by amending the application. “Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.” *In re Zletz*, 893 F.2d at 322.

When a claim is amenable to two or more plausible claim constructions, the claim is indefinite for failing to particularly point out and distinctly claim the subject matter that Appellants consider to be the invention. *See Ex parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008).

The plain language of the claims seems to indicate that the claim refers to elemental metal, not in metal compound or metal alloy. Yet, Appellants contend that “paragraphs [0004], [0005], [0008], [0036] and [0094] of the specification discloses that the metal reactants may be elemental metal or a metal compound. (App. Br. 5). We have not been directed to any persuasive evidence that establishes the term “metal” as described in the Specification includes more than its ordinary meaning. These citations to the Specification provided by the Appellants describe the “metal reactants” that include metal as well as metal compounds. The portions of the Specification identified by Appellants does not state that metal is inclusive of metal compounds. For example, paragraph [0008] states “[t]he process of combining metal, and/or metal compounds, and hydrofluoric acid...” This language appears to indicate that the term “metal” is not inclusive of metal compounds. Appellants have not pointed to any other portions of the Specification that would clarify this confusion. Due to the fact that the claim language in question is amenable to two or more plausible claim constructions, namely, an ambiguity as to whether the term “metal” includes or excludes metal compounds, we affirm the Examiner's rejection of claims 1-24 and 26 under 35 U.S.C. §112, second paragraph, as indefinite for particularly pointing out and distinctly claiming

the subject matter that Appellant considers to be the invention. *See Ex parte Miyazaki*, 89 USPQ2d at 1215.

Regarding claims 28-30 and the 35 U.S.C. §112, second paragraph rejections specific thereto, Appellants state the following: “Appellants will not contest Appellee’s [the Examiner’s] rejections” (App. Br. 5). Since Appellants have not challenged the merits of the rejection as presented by the Examiner, we summarily affirm.

The prior art rejection

Claims 1-34 stand rejected under 35 U.S.C. § 103(a) as obvious over the combined teachings of Wojtowicz, Mahmood and Zuzich.

ISSUE

Have Appellants shown reversible error in the Examiner’s conclusion that it would have been obvious to a person of ordinary skill in the art in view of the teachings of Wojtowicz, Mahmood and Zuzich to perform the process of producing metal fluorides comprising introducing anhydrous metal or metal compounds into a vessel containing anhydrous hydrofluoric acid under controlled reaction conditions as required by independent claims 1 and 34.

FINDINGS OF FACT

The Examiner found that Wojtowicz describes a process for producing metal fluorides that comprises reacting anhydrous metal with anhydrous hydrofluoric acid. (Ans. 5-7).

Wojtowicz discloses reaction can be affected in any suitable temperature. (Col. 2, ll. 32-34). The Examiner recognizes that Wojtowicz

discloses that a nitrile compound is included during the reaction.

Appellants have not asserted that the nitrile compound is excluded from the process of the claimed invention. Regarding the order of adding the reactive components Wojtowicz states:

Any convenient order of mixing the reactants and the nitrile may be employed. For example, they may all be separately fed to a reaction vessel. Alternatively, the HF and nitrile may initially be mixed together, the nitrile serving as a solvent. Then the metal may be added followed by bubbling in the halogen, or they halogen may be added to the HF-nitrile mixture followed by the final addition of the metal.
(Col. 2, ll. 24-31).

The Examiner found that Mahmood was evidence that the process of reacting metal compounds with hydrofluoric acid is an endothermic reaction. (Ans. 7-9). Mahmood discloses that due to the endothermic reaction, it was important to control the temperature in the process of forming metal fluorides. To achieve this goal, Mahmood discloses that the components were added in intervals to maintain the appropriate reaction conditions. (Col. 4, ll. 20-57). The Examiner also cited the Zuzich reference for describing that it was known to persons of ordinary skill in the art to maintain appropriate reaction conditions (in this case exothermic) by the controlled addition of the reaction components. (Ans. 9). Based on these findings the Examiner concluded that it would be obvious for one with ordinary skill in the art to perform the process of producing metal fluorides comprising introducing anhydrous metal or metal compounds into a vessel containing anhydrous hydrofluoric acid under controlled reaction conditions utilizing the known techniques exhibited in the prior art.

PRINCIPLES OF LAW

In assessing whether a claim to a combination of prior art elements is obvious, the question to be asked is whether the improvement of the claim is more than the predictable use of prior art elements according to their established functions. *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740 (2007). The analysis need not seek out precise teachings directed to the specific subject matter of the claim, for it is proper to take account of the inferences and creative steps that a person of ordinary skill in the art would employ. *Id.* at 1740-1741.

Where the rejection is based on a combination of references, the test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

ANALYSIS

Appellants' arguments for claims 31 and 34 are principally the same as those presented in the discussion of claim 1. Appellants do not present separate arguments for the remaining claims on appeal. (Br. 6-11). Accordingly, in assessing Appellants' arguments, we will focus on independent claim 1 since this claim contains the limitations relevant to Appellants' arguments.

Appellants' arguments in rebuttal to the Examiner stated rejection focuses on the Mahmood reference and does not address the combinations of references as set forth by the Examiner. Specifically, Appellants argue that Mahmood teaches adding hydrofluoric acid to the metal compound,

which is not the same as the limitations of claim 1 that require the introduction of aliquots of anhydrous metal into the anhydrous hydrofluoric acid. (App. Br. 6-7). However, Appellants do not explain why they believe the Examiner's proposed motivation for combining the reference teachings lacks sufficient specificity to support a conclusion of obviousness.³ On the other hand, an obviousness conclusion is supported by the appeal record, because the resulting combination of prior art processes appears to yield no more than the predictable use of these known reaction conditions.

For the foregoing reasons and those presented in the Answer, the rejection of claims 1-34 under 35 U.S.C. § 103(a) is affirmed.

ORDER

The rejection of claims 1-24, 26, and 28-30 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which is regard as the invention is affirmed.

The rejection of claims 1-34 under 35 U.S.C. § 103(a) as obvious over the combined teachings of Wojtowicz, Mahmood and Zuzich is affirmed.

³ Wojtowicz was cited for describes a process for producing metal fluorides that comprises reacting anhydrous metal or metal compounds with anhydrous hydrofluoric acid in any order. Mahmood and Zuzich were cited for teaching controlled addition of reactants.

Appeal 2009-1401
Application 10/662,992

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784